

What is claimed is:

1. A fuel supply control apparatus for an internal combustion engine, which serves to supply fuel in a fuel tank to an injector installed in a combustion chamber of an internal combustion engine, said apparatus comprising:

a crank angle detection section for generating a crank angle signal in synchronization with the rotation of a crankshaft of said internal combustion engine;

a cam angle detection section for generating a cam angle signal in synchronization with the rotation of a camshaft of said internal combustion engine;

a positive displacement fuel supply section having a suction stroke and a discharge stroke synchronized with the rotation of said camshaft for supplying said fuel to said injector; and

an effective stroke changing section for changing an effective stroke related to the discharge stroke of said fuel supply section;

wherein said effective stroke changing section operates in synchronization with said crank angle signal and said cam angle signal so as to change said effective stroke based on said cam angle signal.

2. The fuel supply control apparatus for an internal combustion engine as set forth in claim 1, wherein said effective stroke changing section decides control timing for said effective stroke based on a period calculated from a cam angle indicated by said cam angle signal.

3. The fuel supply control apparatus for an internal combustion engine as set forth in claim 1, wherein said effective stroke changing section decides control timing for said effective stroke by using said cam angle signal detected at equal intervals.

4. The fuel supply control apparatus for an internal combustion engine according to claim 1, wherein said effective stroke changing section changes said effective stroke by correcting a deviation of each pulse of said cam angle signal.

5. The fuel supply control apparatus for an internal combustion engine according to claim 1, wherein said effective stroke changing section changes

said effective stroke by using said cam angle signal on the suction stroke of said fuel supply section.

6. The fuel supply control apparatus for an internal combustion engine as set forth in claim 5, wherein a period from input timing of said cam angle signal related to the control of said effective stroke changing section to termination timing of the suction stroke of said fuel supply section is set longer than dead time due to an operation delay of said effective stroke changing section.

7. The fuel supply control apparatus for an internal combustion engine as set forth in claim 5, wherein a period from start timing of the suction stroke of said fuel supply section to input timing of said cam angle signal related to the control of said effective stroke changing section is set longer than a runup time to control said effective stroke changing section.

8. The fuel supply control apparatus for an internal combustion engine as set forth in claim 1, wherein said effective stroke changing section decides control timing of said effective stroke changing section based on a cam angle indicated by said cam angle signal, and changes said effective stroke by counting the number of pulses of said crank angle signal.

9. The fuel supply control apparatus for an internal combustion engine as set forth in claim 8, wherein said effective stroke changing section decides, based on an operating condition of said internal combustion engine detected by counting the number of pulses of said crank angle signal, whether said effective stroke can be changed or not.

10. The fuel supply control apparatus for an internal combustion engine as set forth in claim 9, wherein the operating condition of said internal combustion engine includes the rotational speed thereof.

11. The fuel supply control apparatus for an internal combustion engine as set forth in claim 9, wherein said internal combustion engine has a valve timing control section for controlling operation timing of at least one of an intake valve and an exhaust valve, and the operating condition of said internal combustion engine includes the control state of said valve timing control section.

12. The fuel supply control apparatus for an internal combustion engine as set forth in claim 8, wherein said crank angle detection section has an

untoothed portion corresponding to a specific crank angle position for which no pulse of said crank angle signal is generated, said untoothed portion being arranged so as to correspond to the suction stroke of said fuel supply section.